Newsletter of the National Biological Information Infrastructure

nbii Access

Fall 2005 www.nbii.gov Volume 8, Number 4

Second Issue of *Sustainability* Now Available

In the spring 2005 issue of *Access,* we mentioned that *Sustainability: Science, Practice, & Policy* – a new peer-reviewed, open access e-journal – had been launched in April. Now, the second issue of *Sustainability*, fall 2005, is available at <http://ejournal.nbii.org/current.html>. This issue features an editorial by Michael H. Glantz, Director, Center for Capacity Building, National Center for Atmospheric Research.

The site also provides access to the following full-text articles:

- "Obstacles to and potentials of the societal implementation of sustainable development: a comparative analysis of two case studies," by Karen Kastenhofer and Christian Rammel (University of Vienna, Austria),
- "The Use of Science in Environmental Policy: A Case Study of the Regional Forest Agreement Process in Western Australia," by Martin Brueckner and Pierre Horwitz (Edith Cowan University, Western Australia),
- "Uncertainty, Innovation, and Dynamic Sustainable Development," by Lenore Newman (Royal Roads University, Canada), and

(continued on page 3)

Building NBII Paw-nerships

Last August, Michael "Chad" Case had been busy getting the word out that the NBII is an invaluable network for biological information. Little did he know, though, that his work would lead him literally to the dogs and that he would also gain a new network of friends.

Chad works at the USGS National Wetlands Research Center (NWRC) in Lafayette, LA, as the Biological Outreach Coordinator for the NBII Central Southwest Gulf Coast Information Node (CSWGCIN).

Ever seeking new partnerships, Chad met with representatives from the Arkansas Game and Fish Commission during the last week of August 2005 to discuss several project ideas. When he returned to Lafayette later that week, he found that Hurricane Katrina was approaching the Gulf of Mexico.

On Monday, August 29, the

(continued on page 3)

Chad Case (left) and Clint Jeske search for people in need of help in a flooded neighborhood in New Orleans.

In This Issue

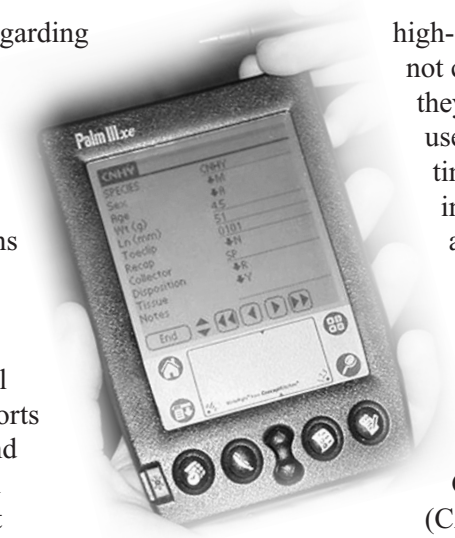
Partners in the Spotlight

"Partners in the Spotlight" highlights activities and contributions of a wide range of NBII partners. This issue we are pleased to look at the NBII California Information Node and work it is doing with the California Department of Fish and Game, USGS Western Ecological Research Center, U.S. Fish and Wildlife Service, and others. If you're interested in producing a similar article about your organization, please contact Ron Sepic, Access *Editor, at: <ron_sepic@usgs.gov>.*

NBII Helps Southern California Data Integration Project Advance

California offers one of the nation's premier regions for plant and animal diversity. With more than 7,400 native taxa, it ranks first among the states in total species richness and endemic species. The state's extraordinary biodiversity provides ecological, economic, and aesthetic benefits to both residents and visitors. However, a rapidly growing human population of more than 34 million inhabitants places ever greater pressures on this rich biodiversity. Efforts to sustain that biodiversity are occurring at several levels.

Among the most important requirements for dealing with these pressures are relevant data and information that can be used by those in the public and private sectors who need to make informed conservation decisions regarding California's biological resources. However, multiple organizations collect and maintain biological and physical data in all sorts of digital and handwritten formats that are not readily available to end users. While some agencies have systems and staff in place to manage portions of the data, others do not. As a result, much high-quality biological data are not collected and organized so they are available to the broad user community in an efficient, timely manner. Worse still, in many cases, data are lost as organizational missions change, employees move on, or both.



A PDA (personal digital assistant) can be used to collect data in the field.

To address the biological observation data management challenge in California, the NBII California Information Node (CAIN) has partnered with the California Department of Fish and Game (DFG), USGS Western Ecological Research Center, U.S. Fish and Wildlife Service, and others to support the Biogeographic Information and Observation System (BIOS). BIOS is a strategy that identifies existing biological observation data and spatial information, manages them, and facilitates sharing of that data and information. By utilizing relational database management and Internet Map Server technologies BIOS represents a statewide, integrated information management tool for field observation data.

Initially, the partnership supports the use of BIOS as the core system for a broad interagency data sharing initiative called the Southern California Data Integration Project. Under this initiative, the partner agencies are sharing staff and resources to pool biological data for the areas of Southern California undergoing conservation planning efforts. In the first year, more than

(continued on page 7)

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Access, the newsletter of the National Biological Information Infrastructure, is published by the NBII National Program Office.

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Sustainability (continued from page 1)

- Community Essay: "EPA's P3 – People, Prosperity, and Planet – Award," by Julie Beth Zimmerman (Environmental Protection Agency, USA).

Sustainability: Science, Practice, & Policy provides a platform for the dissemination of new practices and for dialogue emerging out of the field of sustainability. It is published as part of an ambitious government/private industry partnership between the National Biological Information Infrastructure (NBII) and CSA. Final issues of the e-journal include peer-reviewed full-text articles, guest editorials, reviews of current research, and community essays.

The NBII <www.nbii.gov> is a broad, collaborative program to provide increased access to data and information on the nation's biological resources. The NBII links diverse, high-quality biological databases, information products, and analytical tools maintained by NBII partners and other contributors in government agencies, academic institutions, non-government organizations, and private industry. CSA <www.csa.com> is a leading producer of bibliographic citation databases and Web resources databases.

For more information about *Sustainability: Science, Practice, & Policy*, please access <http://ejournal.nbii.org>.

Paw-nerships (continued from page 1)

National Hurricane Center in Miami warned that a potentially catastrophic, category 5 hurricane was approaching the northern Gulf Coast. Even though Katrina began to weaken as it approached land, it was still an extremely dangerous category 4 hurricane as it moved northward toward southeastern Louisiana and the northern Gulf Coast. By Monday, Katrina was pounding the coast.

NWRC employees returned to work Tuesday to find that what they all knew too well *could* happen had happened — multiple levee failures in New Orleans, a city already below sea level.

By August 30, stories began trickling out of the New Orleans area that people were trapped by floodwaters on roofs and in attics. Hospitals and nursing homes had not been completely evacuated. Standard communications systems were virtually nonexistent.

Greg Smith, NWRC Director, called the staff together. NWRC had the resources, training, personnel, and will to help out.

This unprecedented event called for an unprecedented response, and a dedicated group of volunteers from NWRC spent several days in the field assisting search and rescue missions, giving aid, unloading barges of evacuees, conducting basic triage, developing 911 call maps, and helping out in countless ways.

Chad, a Navy veteran, was one of the initial volunteers in the rescue and recovery operations. His team headed out early Wednesday and over the next five days, spent three of them on the water, helping hundreds of people evacuate the city. This group of volunteers rescued 594 directly and indirectly helped over 1,900 individuals.

Chad did one more rescue.

After helping two brothers evacuate their home on O'Reilly Street, Chad noticed a puppy stranded on top of a chair on the flooded front porch next door. An evacuee told him that the dog swam up during the initial flood and that they had been tossing it food. Once they left, the puppy would be all alone.

Late that evening after the last run of the day before curfew, the boat passed by the house again, and Chad rescued "Mr. O'Reilly" from his precarious perch on the flooded porch. Chad checks Web sites daily to search for the owners, with no luck. Meanwhile the black mixed rat terrier-chihuahua is living the good life on a bayou that he amazingly likes to swim in.

While rescue operations continued, Chad's contacts from Arkansas called to find out how he and the Center had made it through the hurricane and were told of their rescue work in New Orleans. A few days later, Chad found a package on his desk from the Arkansas Game and Fish Commission. Included was a thank-you note for his efforts in New Orleans, four music CDs to help keep his mind occupied, and a box of dog biscuits for Mr. O'Reilly.

Chad Case, CSWGCIN Biological Outreach Coordinator, rescues a rat terrier mix puppy from a flooded home on O'Reilly Street in New Orleans.

It really is surprising how NBII partners in Arkansas quickly turned into caring friends, and how these new friends made Chad's day a little brighter with doggie treats!

Invasive Species Toolbox

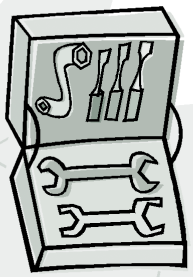
This column is a collection of useful items and highlights related to invasive species information management issues. Do you have ideas or suggestions? Contact <asimpson@usgs.gov> or <esellers@usgs.gov> and cc: the Access *editor <ron_sepic@usgs.gov>.*

First Statewide Conference in Texas on Non-native Invasive Plants

On November 17-18, the Pulling Together Initiative hosted the first statewide conference in Texas on non-native invasive plants. The Pulling Together Initiative is a collaborative project between the Texas Forest Service, the Forest Health Protection branch of the U.S. Department of Agriculture Forest Service, the NBII Central Southwest Gulf Coast Information Node at the Houston Advanced Research Center, and the Lady Bird Johnson Wildflower Center. Dr. Tom Stohlgren, Science Director and Invasive Species Branch Chief of the USGS National Institute of Invasive Species Science (NIISS), was a keynote speaker. The meeting served scientists, land managers, state and federal agencies, local governments, and other professionals interested in invasive plant research and policy in Texas. An additional day of the conference was devoted to public awareness and educational outreach, and was open to the public. For more information, visit the conference Web site <http://www.texasinvasives.org/conference/conference.html>.

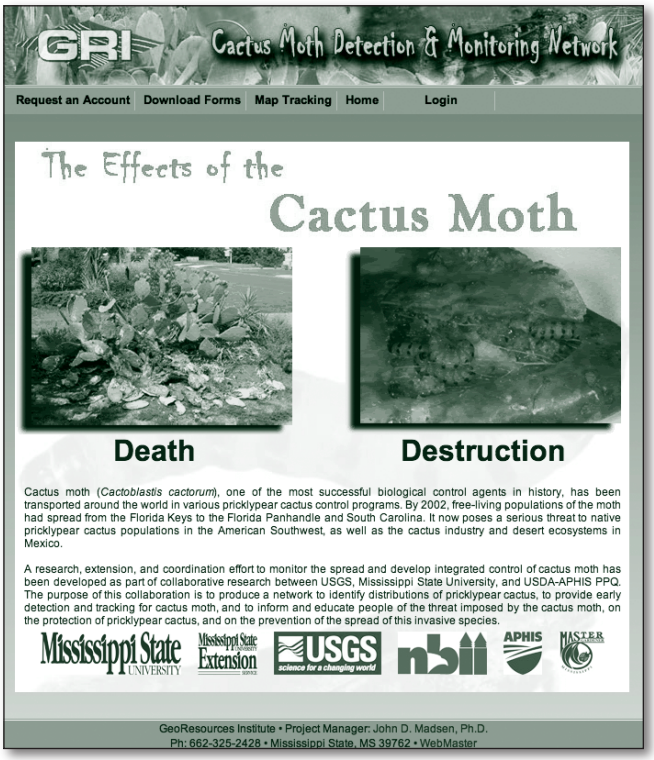
Invasive Species Information Node (ISIN) Projects Highlighted at 2005 NBII All-Nodes Meeting

Three projects that focused on information gathering and management for invasive species early detection, rapid assessment, and rapid response were highlighted at the 2005 NBII All-Nodes Meeting in Albuquerque, NM, October 24-28. Dr. Tom Stohlgren, Science Director and Invasive Species Branch Chief of the USGS NIISS, contributed a poster on the Global Organism Detection and Monitoring System. Dr. John Madsen of Mississippi State University's GeoResources Institute presented the poster "A Web-Based Database for the National Cactus Moth Detection Network." And Dr. Joel Sachs of the University of Maryland's Semantic Prototypes in Research Ecoinformatics (SPIRE) working group presented the poster "ELVIS – Integrating Observation Data to Predict Lists and Food Webs."



Projects at a Glance…

- The Global Organism and Detection and Monitoring System was created by the USGS NIISS <http://www.niiss.org> to track and model invasive species range changes. The system also addresses the need for a central repository of real-time information on invasive species for land managers and the public.
- The NBII-ISIN, the United States Animal Plant Health Inspection Service, and MSU's GeoResources Institute formed the National Cactus Moth Detection Network to monitor the spread of the cactus moth (*Cactoblastis cactorum*). The cactus moth larvae quickly destroy prickly pear plants (*Opuntia spp.*). The cactus moth has spread from the Caribbean northeast to South Carolina and west to Alabama, and is a threat to native cactus biodiversity, horticulture, and forage in the southwestern United States and Mexico.
- The SPIRE project is building semantic Web prototypes in support of biodiversity and biocomplexity research, with a focus on invasive species. The SPIRE poster spotlighted ELVIS – the Ecosystem Location Visualization Information System. ELVIS users can input species lists into the tool, and generate a food web for those species (a map/diagram of predator-prey or competitive relationships among species in a community).



You're invited to visit the Cactus Moth Detection and Monitoring Network <http://www.gri.msstate.edu/research/cmdmn/>.

The NBII Metadata Program: Making Metadata Happen

Think for a moment about a new project in your organization that involves collaboration with two partners. Both partners are contributing data sets to the project, and you are tasked with merging the information, analyzing it, and creating a new informational mapping tool. You receive a data set from one partner, and you are relieved to see a Federal Geographic Data Committee (FGDC)-compliant metadata record accompanying it. Why? Because you are now able to read about when the data set was created, why, who developed it, what scientific methods were used, the content and structure of the data, how the data were produced, the level of accuracy, and its geospatial domain.

You are very encouraged by your experience, so you move on to the second data set….but, sadly, there is no metadata record with the data. As you stare at columns of data, you are faced with a myriad of questions. What units of measure were used in this data set? What do all these abbreviations in the column headers mean? Who is responsible for maintaining the data set? Why were the data originally collected? You wonder if you will be able to gather all this information and still meet your deadlines. You sigh as you pick up the phone to make what will surely be a lengthy call – if you can figure out who to call in the first place…

How can the latter scenario be remedied? Here are a few helpful starting points:

1) Sell the idea to upper management by emphasizing the importance of standardized records that document the important work of your scientists and researchers. Highlight that metadata are an efficient method of tracking the accomplishments of your department. Robust metadata records can be used to capture institutional knowledge – a useful tool when experienced scientists retire, for example.

Find out about workshops offered throughout the year by visiting the NBII training calendar: <http://www.nbii.gov/datainfo/metadata/training/calendar.html>.

2) Assign a metadata expert in your organization. The role of that individual is to conduct information gathering interviews with your scientists by asking 15 simple questions about their data set. (For a list of questions, contact Viv Hutchison: <vhutchison@usgs.gov>.) Information collected will be used to create a metadata record to be reviewed later with the scientist. Create metadata templates for further similar or related research efforts.

3) Engage the resources of the NBII. We have built an infrastructure for you to use that includes training, quality control, record creation assistance, and a growing Clearinghouse.

First, find out about workshops offered throughout the year by visiting the NBII training calendar: <http://www.nbii.gov/datainfo/metadata/training/calendar.html>. Start by sending one person to the training, then decide if your agency would benefit by a workshop at your location. Limited travel funding is offered for most of the workshops.

Second, ask about NBII metadata creation assistance to begin immediately documenting your top priority data sets. It is a free service.

Third, investigate the best metadata creation tool for your needs – there are several to choose from, depending on your organizational needs. Examples can be found here: <http://www.nbii.gov/datainfo/metadata/tools/>.

Last, consider joining the Clearinghouse. Once you have started documenting data sets, the NBII will quality control your record and submit it to the Clearinghouse for you. You can become a Clearinghouse node, and we will harvest your records weekly into the NBII Clearinghouse under your organizational name.

The data your organization collects are important and valuable. Data sharing, collaboration, and resource leveraging are a reality in today's science environment. Metadata records will make it all possible, and will preserve research conducted today for tomorrow's generations. Many resources are available to you. Let the NBII know how we can help! For more information, contact Viv Hutchison, NBII Metadata Coordinator, by e-mail <vhutchison@usgs.gov> or phone 206/526-6282, ext 329.

NBII to AAAS

If you're going to St. Louis, MO, for the 2006 annual meeting of the American Association for the Advancement of Science (AAAS), be sure to check out the session on Saturday, February 18, 3:45-5:15 pm, in the Biological Frontiers track: "Biodiversity Research and Information: Scalability and Complexity in Data."

Dr. Peter Raven, Director of the Missouri Botanical Garden, will moderate the session. Gladys Cotter, Associate Chief Biologist for Information for the USGS, will speak about "Biodiversity Informatics: The Challenge of Data Integration." One of Ms. Cotter's key responsibilities is overseeing NBII development.

International Connections

IABIN and Central American Commission on Environment and Development Countries Sign Memorandum of Cooperation

On October 20, the Inter-American Biodiversity Information Network (IABIN) and the Central American Commission on Environment and Development (CCAD) <http://www.ccad.ws> signed a Memorandum of Cooperation (MoC) in Managua, Nicaragua, to formalize the relationship between both initiatives and establish a road map for future collaboration. The agreement was signed by Marco A. González, Executive Director of CCAD, and Gladys Cotter, Chair of the IABIN Council. Iván Valdespino represented IABIN during the official ceremony.

Among the MoC's agreements, both initiatives will collaborate on promoting interoperability, connectivity, and access to biodiversity data generated in the Meso-American region and interconnect them with other data generated in sub-regions of the American Continent. In addition, both initiatives will work closely on building capacity in the area of biodiversity informatics in the Meso-American Region, and in the development of the national, subregional, and regional environmental information systems.

Photo credit: Yaba Batista/NBII

Marco A. González (left), Executive Director of CCAD, and Iván Valdespino, Director of the IABIN Secretariat (representing Gladys Cotter, IABIN Council Chair), sign the MoC between CCAD and IABIN.

NBII Bilateral Cooperation Progresses at Census of Marine Life All-Programs Meeting

During the Census of Marine Life (COML) All-Programs Meeting and the Ocean Biogeographic Information System (OBIS) management committee meetings in Frankfurt, Germany, November 4-5, NBII Pacific Basin Information Node Manager Mark Fornwall met with counterparts from Australia, Japan, and other Pacific nations to discuss international data sharing, standards, and integration. Bilateral cooperation on these initiatives with Australia, New Zealand, and Japan under U.S. global change agreements allows for the USGS and counterpart agencies in these countries to support development of the Pacific Biodiversity Information Forum (PBIF), an effort to create a venue for peoples from the Asia/Oceania region to collaborate on biodiversity science, management, and education. The OBIS – the information system that supports the COML effort by providing global geo-referenced information on marine species through the Internet – is an integral part of collaboration on biodiversity issues with these countries. Pacific nations will also work closely on the development of regional and hemispheric species lists to be included in the Integrated Taxonomic Information System.

Ecology in an Era of Globalization Conference

The Ecological Society of America is organizing a conference to be held in 2006 designed to develop strategies to increase international access to ecological knowledge as well as collaboration among environmental scientists. The conference, Ecology in an Era of Globalization, will be held in Merida, Mexico, January 8 - 12. At the event, the NBII will share information on ongoing initiatives with the academic research community, government agencies, non-government organizations (NGOs), and the private sector interested in biodiversity conservation in the Americas.

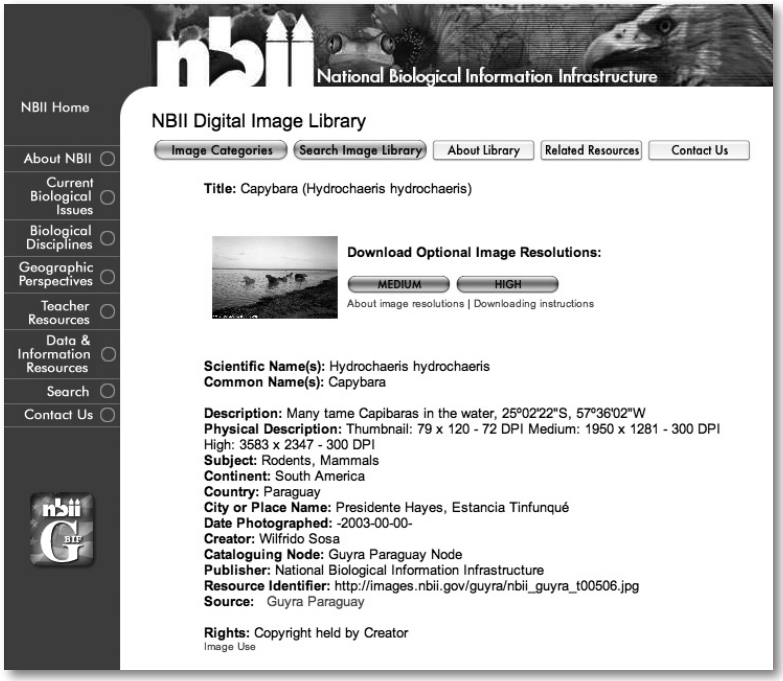
NBII staff will be presenting four posters:"IABIN Invasives Information Network (I3N): Invasive Species Information and Technology for the Americas," "Inter-American Biodiversity Information Network," "NBII and IABIN: Sharing Biodiversity Knowledge Across International Borders," and "The Global Invasive Species Information Network." The NBII will also be sharing information on the NBII Invasive Species Information Node, NBII products, the NBII Digital Image Library, and the NBII Biological Metadata Standard. In

International Connections (continued from page 6)

addition, Annie Simpson and Liz Sellers will participate in invasive species discussion sessions. Annie will present the paper on "Invasive Species Information Management and Exchange in the Americas: I3N." Liz is presenting a paper on "The National Cactus Moth Detection Network and Database."

NBII's Partnership With Guyra Paraguay: Two Projects Successfully Completed

Guyra Paraguay, one of the leading NGOs in Paraguay, has successfully completed two projects in partnership with the NBII: "Vertebrate and Vascular Plant Species Data" and the "Development of the Paraguay Image Library." The first of these provided key data for the development of a Bird Atlas of Paraguay, eco-regional planning by The Nature Conservancy for the Gran Chaco, a National Report to the Convention of Migratory Species, and a National Report for the Ramsar Convention. The second project contributed more than 2,000 images to the NBII, becoming the first Special Collection within the NBII's Digital Image Library. Guyra will continue to contribute images and rescue biodiversity data. Guyra Paraguay is a not-for profit organization whose mission is to lead and coordinate actions for the conservation and sustainable use of biological diversity, with emphasis on birds, through the promotion of suitable public policies, research, and society's active participation.



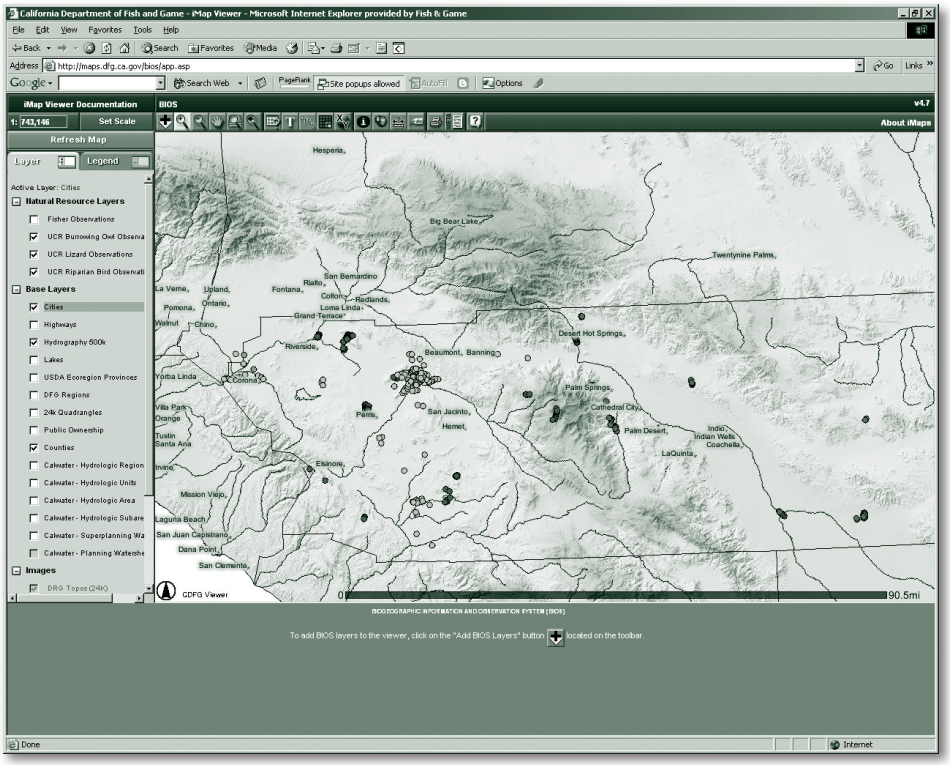
Guyra Paraguay's Special Collection can be accessed at <http://images.nbii.gov/guyra.php> (sample image record shown).

Partners in the Spotlight (continued from page 2)

100 data layers have been contributed to BIOS from key organizations with several hundred more in the process of being added to the system.

Already the project has demonstrated that it can increase efficiency, improve knowledge, and enhance conservation decision-making. For more information, see <http://cain.nbii.gov>.

As the state's trustee agency for managing diverse fish, wildlife, and plant resources as well as the habitats upon which they depend, the DFG <www.dfg.ca.gov> plays a key role in the development of the biological data and tools needed for effective conservation planning. At the federal level, the NBII <www.nbii.gov> is a broad, collaborative program to provide increased access to data and information on the nation's biological resources.



BIOS ArcIMS data viewer

Upcoming Events of NBII Interest

Climate Change Futures – Health, Ecological and Economic Dimensions, New York, NY.	November 1
Water in the West: 21st Century Challenges in a 19th Century Legal Framework, Palo Alto, CA.	November 1
Annual Charleston Conference, Charleston, SC.	November 2-5
National Ground Water Association Conference on Remediation — Site Closure and the Costs of Cleanup, Houston, TX.	November 7-8
State of the Gulf of Mexico Summit, Corpus Christi, TX.	November 7-9
National Science Teachers Association 2005 Midwestern Area Conference, Chicago, IL.	November 10-12
Scientific Publishing: What Does the Future Hold?, Bethlehem, PA.	November 12
SETAC North America 26th Annual Meeting, Baltimore, MD.	November 13-17
KMWorld & Intranets, San Jose, CA.	November 15-17
First Online Conference on Metadata and Semantics Research, www.metadata-semantics.org.	November 21-30
Workshop on the Joint Global Work Plan on Terrestrial and Freshwater Invasive Alien Species, Montreal, Canada.	November 23-25
Deep-Sea Corals: Science and Management, Miami, FL.	November 28-December 2
Online Information Conference 2005, London, England.	November 29-December 1
National Science Teachers Association 2005 Southern Area Convention, Nashville, TN.	December 1-3
Environmental Results Using Market-Based Approaches, Atlantic City, NJ.	December 5-7
Fourth Municipal Leaders Summit on Climate Change, Montreal, Canada.	December 5-7
16th Biennial Conference on the Biology of Marine Mammals, San Diego, CA.	December 12-16

National Biological Information Infrastructure

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